

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NORMAN A. VAN REES

Appeal No. 95-0954
Application 08/058,092¹

HEARD: MAY 5, 1998

Before GARRIS, WARREN and OWENS, *Administrative Patent Judges*.
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1-16, which are all of the claims in the application.

¹ Application for patent filed May 6, 1993. According to appellant, the application is a continuation-in-part of Application 07/882,272, filed May 13, 1992, now abandoned.

THE INVENTION

Appellant claims a biodegradable air freshener and odor neutralizer which breaks down in the presence of water and is comprised of a substantially dry, rigid, open-celled foam vegetable starch substrate which carries a liquid fragrance. Appellant also claims methods for making the air freshener and using it to freshening air. Claims 1, 7 and 16 are illustrative and read as follows:

1. A biodegradable air freshener and odor neutralizer that breaks down in the presence of water to minimize solid waste, the air freshener comprising:

a water soluble substrate substantially comprising a substantially dry, rigid, open-celled foam consisting essentially of vegetable starch; and

a liquid fragrance carried in the substrate.

7. A method of making an air freshener comprising the steps of:

providing a water soluble substrate made of a substantially dry, rigid, open-celled foam consisting essentially of vegetable starch; and

introducing liquid fragrance to be absorbed into the substrate.

16. A method of freshening the air comprising the steps of:

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providing a substrate made of a substantially dry, rigid, open-celled foam consisting essentially of vegetable starch, infused with a volatile fragrance wherein the fragrance volatilizes from the substrate to freshen the surrounding air; and

dissolving the substrate in water when the fragrance has substantially volatilized.

THE REFERENCES

Palinczar et al. (Palinczar)	4,339,550	Jul. 13, 1982
Eden et al. (Eden)	4,812,445	Mar. 14, 1989
Whistler	4,985,082	Jan. 15, 1991

THE REJECTIONS

Claims 1-16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Whistler or Eden, in view of Palinczar.

Claim 16 also stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention.

OPINION

We have carefully considered all of the arguments advanced by appellant and the examiner and conclude that appellant's claimed invention would have been obvious to one of ordinary skill in the art at the time of appellant's invention over the prior art. Accordingly, the aforementioned

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rejection under 35 U.S.C. § 103 will be affirmed. Because our reasoning differs substantially from that of the examiner, we will denominate the

affirmance as involving a new ground of rejection under 37 CFR § 1.196(b). We agree with appellant that the rejection under 35 U.S.C. § 112, second paragraph is not well founded. This rejection therefore will be reversed.

Rejection under 35 U.S.C. § 103

Appellant acknowledges that it was known in the art to infuse fragrances into a polystyrene foam carrier, and that such a carrier was known to be undesirable because it is substantially non-biodegradable and will not decompose, and therefore will become a permanent part of a landfill (specification, page 1, lines 21-32).² Given this problem, those of ordinary skill in the art would have been motivated

² It is axiomatic that our consideration of the prior art must, of necessity, include consideration of the admitted state of the art. See *In re Hedges*, 783 F.2d 1038, 1039-40, 228 USPQ 685, 686 (Fed. Cir. 1986); *In re Davis*, 305 F.2d 501, 503, 134 USPQ 256, 258 (CCPA 1962).

to use their skill to solve the problem. As stated in *In re Nomiya*, 509 F.2d 566, 572, 184 USPQ 607, 613 (CCPA 1975):

The significance of evidence that a problem was known in the prior art is, of course, that knowledge of a problem provides a reason or motivation for workers in the art to apply their skill to its solution.

Such a solution clearly would have been to use a water soluble and biodegradable carrier which has the characteristics of polystyrene. Appellant acknowledges that ECO-FOAM, which is a substantially dry, rigid, open-celled foam composed of over 95% corn starch and which generally resembles polystyrene, was known in the art (specification, page 3, lines 13-26).

Appellant states that due to the high starch content of ECO-FOAM, it is easily decomposed in water (*see id.*). Because a water soluble, biodegradable foam which resembles polystyrene was known in the art, one of ordinary skill in the art would have been motivated to use it as a fragrance carrier to solve the problem of polystyrene not being water soluble and biodegradable.

Whistler discloses, as a carrier for liquid fragrances, amylase-treated starch granules which have numerous pores

leading from the granule surface to the granule interior such that the granules have a sponge-like appearance on microscopic examination (col. 1, lines 35-43; col. 3, lines 17-31).

Whistler teaches that the granules can be made from a wide variety of vegetable starches including corn starch, can have a wide range of pore sizes, can be used in powder form, and can store liquids which are released to the surrounding medium by diffusion at a slow rate (col. 2, lines 17-24; col. 3, lines 17-31 and 43-58).³

Given these teachings by Whistler, one of ordinary skill in the art would have had a reasonable expectation that the known ECO-FOAM porous vegetable starch likewise would be suitable as a carrier for liquid fragrances. Thus, since one of ordinary skill in the art would have had both a motivation to use ECO-FOAM as a water soluble and biodegradable substitute for polystyrene as a carrier for liquid fragrances and a reasonable expectation of success in doing so, use of ECO-FOAM as such a carrier would have been *prima facie* obvious

³ A discussion of Eden and Palinczar is not necessary to our decision.

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to one of ordinary skill in the art. See *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894, 902, 7 USPQ2d 1673, 1680 (Fed. Cir. 1988); *In re Longi*, 759 F.2d 887, 892-93, 225 USPQ 645, 648 (Fed. Cir. 1985).

Appellant argues that Whistler's granular starch is hydrolyzed and crosslinked (brief, page 6). Whistler teaches that granule firmness and structural integrity in a water dispersion can be obtained by controlling the degree of starch hydrolysis (col. 2, lines 23-25). Greater structural integrity can be obtained, Whistler teaches, by treating the microporous granules with a bifunctional starch-reactive crosslinking agent

(col. 2, lines 27-43). Whistler teaches that the granules become more resistant to mechanical damage and to swelling and dissolution as the degree of crosslinking increases (col. 2, lines 43-45). Whistler does not, however, teach that any such hydrolysis or crosslinking is needed for the granules to

absorb a fragrance. Instead, Whistler teaches that the capacity of the granules to absorb functional substances is dependent upon the compatibility of the surfaces of the starch matrix with the absorbate, and discloses materials which are effective for use in treating the starch matrix surfaces to increase that compatibility (col. 2, line 49 - col. 3, line 13). Thus, in view of this teaching, one of ordinary skill in the art would have had a reasonable expectation that ECO-FOAM starch, with treatment of its surfaces if needed, would be capable of absorbing fragrances which are compatible with the ECO-FOAM surfaces.

With respect to the last step in claim 16, which recites that the foam vegetable starch substrate is dissolved in water when the fragrance has substantially volatilized, appellant argues that there is no teaching or suggestion of this method of disposal (brief, page 10). We are not persuaded by this argument for the following reason. As acknowledged by appellant, a known problem in the art was that polystyrene foam fragrance carriers would not decompose in landfills (specification, page 1, lines 21-32). For the above reasons,

it would have been *prima facie* obvious to one of ordinary skill in the art to use a carrier which is similar to polystyrene in structure, such as ECO-FOAM, but is water soluble and biodegradable, so that the carrier will dissolve in water and biodegrade in a landfill.

Appellant's separate arguments (brief, pages 9-10) directed toward, as groups, claims 1-6, claims 7-9, claims 10-15, and claim 16 are addressed in the above discussion.

For the above reasons, we conclude, based on the preponderance of the evidence and argument in the record, that appellant's claimed invention would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103. Because this conclusion is based on rationale which is substantially different than that advanced by the examiner, we denominate this affirmance as involving a new ground of rejection under 37 CFR § 1.196(b).

Rejection under 35 U.S.C. § 112, second paragraph

The examiner argues that appellant's claim 16 is vague and indefinite because it is not clear how the last step in

that claim, i.e., "dissolving the substrate in water when the fragrance has substantially volatilized" limits the method of freshening air (answer, page 3). In the examiner's view, the freshening of the air is complete prior to the final step of dissolving the substrate, and the final step is directed toward a method of disposing of the substrate and is not pertinent to freshening air (answer, page 6).

The test for whether a claim directed toward freshening air complies with 35 U.S.C. § 112, second paragraph, is not whether every step in the claim improves the freshness of the air but, rather, whether the claim language is as precise as the subject matter permits and if, when read in light of the specification, the claim reasonably apprises those skilled in the art both of the utilization and scope of the invention. See *Shatterproof Glass v. Libby-Owens Ford Co.*, 758 F.2d 613, 624, 225 USPQ 634, 641 (Fed. Cir. 1985). The examiner has set forth no convincing reason as to why the language of appellant's claim 16 is not as precise as the subject matter permits and, when read in light of the specification, does not reasonably indicate to those of ordinary skill in the art the

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scope and utilization of the invention. Accordingly, we do not sustain the rejection of claim 16 under 35 U.S.C. § 112, second paragraph.

DECISION

The rejection of claims 1-16 under 35 U.S.C. § 103 as being unpatentable over Whistler or Eden, in view of Palinczar is affirmed. We denominate this affirmance as involving a new ground of rejection under 37 CFR § 1.196(b). The rejection of claim 16 under 35 U.S.C. § 112, second paragraph, is reversed.

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b)(amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise

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one of the following two options with respect to the new
ground of rejection to avoid termination of proceedings
(§ 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the
claims so rejected or a showing of facts relating to
the claims so rejected, or both, and have the matter
reconsidered by the examiner, in which event the
application will be remanded to the examiner. . . .

(2) Request that the application be reheard
under § 1.197(b) by the Board of Patent Appeals and
Interferences upon the same record. . . .

No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

AFFIRMED
37 CFR § 1.196(b)

BRADLEY R. GARRIS)	
Administrative Patent Judge)	
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CHARLES F. WARREN)	BOARD OF PATENT
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